

## CLAIMS

1. A sliding surgical clip adapted to connect blood vessel tissue, comprising:  
5 an elongate rail leg having a main axis and terminating with a first tissue penetrating tip; and  
a sliding leg terminating with a second tip and configured to slide along said rail leg towards said first tissue penetrating tip, such that said two tips face each other and engage vascular tissue between them.  
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2. A clip according to claim 1, wherein said second tip comprises a tissue penetrating tip.
3. A clip according to claim 1 or claim 2, comprising a tissue stop on said sliding leg, which stop prevents over penetration of said leg into vascular tissue.  
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4. A clip according to claim 2, wherein said second tip is forked.
5. A clip according to claim 2, wherein said second tip has a section between 0.5 mm and 5 mm long adapted to enter a blood vessel.  
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6. A clip according to claim 2, wherein said second tip has a section between 1 mm and 4 mm long adapted to enter a blood vessel.
7. A clip according to claim 2, wherein said second tip has a section between 0.5 mm and 3 mm long adapted to enter a blood vessel.  
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8. A clip according to any of claims 1-5, wherein said first tip has a section between 0.5 mm and 4 mm long adapted to enter a blood vessel.
- 30 9. A clip according to any of claims 1-6, wherein said first tip is forked.
10. A clip according to any of claims 1-9, wherein said first leg and said second leg are narrower than 1 mm, in a widest dimension thereof, for at least 3 mm adjacent their tips.

11. A clip according to any of claims 1-9, wherein said first leg and said second leg are narrower than 0.7 mm, in a widest dimension thereof, for at least 2 mm adjacent their tips.
- 5 12. A clip according to any of claims 1-9, wherein said first leg and said second leg are narrower than 1 mm, in a widest dimension thereof, for at least 20 mm adjacent their tips.
13. A clip according to any of claims 1-9, wherein said clip is adapted for use with a blood vessel having a diameter of between 2mm and 40 mm.
- 10 14. A clip according to any of claims 1-9, wherein said clip is provided as a set of connectors arranged in a generally circular array and adapted for use for attaching a blood vessel having a diameter of between 1 mm and 10 mm to a second blood vessel.
- 15 15. A clip according to claim 14, wherein said set is sutured together at their rail sections.
16. A clip according to any of claims 1-15, wherein said second tip is adapted to penetrate vascular tissue without tearing the tissue.
- 20 17. A clip according to any of claims 1-16, wherein said elongate rail leg comprises a lock which prevents reverse sliding of said sliding leg.
18. A clip according to claim 17, wherein said elongate rail leg comprises multiple lock locations which prevents reverse sliding of said sliding leg.
- 25 19. A clip according to claim 17, wherein said lock comprises a transaxial extension of said elongate rail which is configured to elastically move out of the way when said sliding leg slides towards said first tip.
- 30 20. A clip according to claim 19, wherein said rail includes a slot adjacent said extension, to support said elastic motion.

21. A clip according to claim 19 or claim 20, wherein said transaxial extension is robust enough to withstand a force of at least 1Kg on said extension.
22. A clip according to any of claims 1-21, wherein said elongate rail leg comprises a lock  
5 which prevents forward sliding of said sliding leg after being locked.
23. A clip according to any of claims 1-22, comprising a tissue stop on said rail leg to prevent over-penetration of said leg into vascular tissue.
- 10 24. A clip according to any of claims 1-23, wherein said rail leg defines a weakened location adapted to be selectively torn when sufficient force is applied to opposite sides of said weakened location.
25. A clip according to any of claims 1-24, wherein said rail leg defines a temporary  
15 locking location distanced from said tip, configured to hold said sliding leg prior to said sliding.
26. A clip according to any of claims 1-25, wherein said sliding leg engages said rail leg  
20 from its outside.
27. A clip according to any of claims 1-26, wherein said rail leg defines a slot along its length and wherein said sliding leg engages said rail leg from said slot.
28. A clip according to claim 27, wherein said rail leg shares an elongate section with an  
25 adjacent rail leg, on an opposite side of a tearing location from said tip.
29. A clip according to any of claims 1-28, wherein said sliding leg includes a base section coupled to said rail leg.
- 30 30. A clip according to claim 29, wherein said base section defines an aperture, which aperture fits around said rail leg.
31. A clip according to claim 30, wherein said fit is snug.

32. A clip according to any of claims 29-31, wherein said base section lies in a plane, which plane lies parallel to said main axis.
- 5 33. A clip according to any of claims 29-31, wherein said base section lies in a plane, which plane is substantially perpendicular to said main axis.
34. A clip according to any of claims 29-31, wherein said base section is curved and lies on either side of said main axis.
- 10 35. A clip according to any of claims 29-34, wherein said base section contacts said rail section at least three points, an axially middle one of said points being on an opposite side of said main axis than the other two of said points.
- 15 36. A clip according to any of claims 1-35, wherein said rail leg defines an aperture adapted to receive a suture.
37. A method of deploying a clip, comprising:  
engaging vascular tissue using a hooked section of a rail leg;  
20 sliding a hooked sliding leg along said rail leg until it engages said tissue;  
locking said sliding leg to said rail leg; and  
tearing a section of said rail leg off adjacent a locked location of said sliding leg.